

### Abstract

A method for estimating the factor and interaction effects for gene expression microarray experiments is disclosed. The method requires the inversion of two square matrices of size  $p$  and  $p'$ , respectively, instead of a matrix of size  $q$  where  $q \gg p \approx p'$ . The invention also includes implementation of the methods in computer software, computer readable media comprising these software instructions, and computer systems for performing the methods.